



**IPA-60**  
**Battery & Voltage Drop**  
**Calculations**

Project Name:  Standby Hours:   
 Alarm Mins:   
 Installed By:  Batt Efficiency:   
 Designed By:  SLC Type:   
 Date:  NAC Source Voltage:

Model #: IPA-60

Max Panel Current (amps): 5

Panel ID:

*User assumes all responsibility to ensure the quantities and current draw values in this worksheet are accurate prior to submittal.*

Location:

Qty	FACP Part #	Description	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
1	IPA-60	Analog Addressable FACP	0.130	0.130	0.220	0.220
<b>Panel Standby:</b>			<b>0.130</b>		<b>Panel Alarm:</b>	<b>0.220</b>

P-LINK (RS-485)			Standby		Alarm	
	MC-1000	Multi-Connect Expander	0.010		0.010	
1	UD-1000	DACT Card	0.016	0.016	0.023	0.023
	RA-6075R	LCD Annunciator	0.020		0.025	
	RA-6500R(F)	Flush Mount LCD Annunciator	0.020		0.050	
	LED-16(F)	Flush Mount LED Annunciator	0.025		0.025	
	LED-16	LED Annunciator LED Power*	0.015		0.210	
	CA-6075	Class A Module	0.012		0.044	
	PSN-1000(E)	Power Expander	0.015		0.015	
	PAD100-SLCE-127	SLC Expander	0.060		0.060	
	NOHMI-SLCE-127*	SLC Expander	0.060		0.060	
	RLY-5	Relay Expander	0.025		0.035	
	RLY-5	Relay Expander Power*	0.010		0.135	
	DRV-50	LED Driver Module	0.025		0.025	
	DRV-50	LED Driver Module LED Power*	0.010		0.215	
	FCB-1000	Fire Communications Bridge	0.025		0.025	
	FIB-1000	Fiber Interface Board	0.030		0.030	
	SPG-1000	Serial Parallel Gateway	0.040		0.040	

\* REQUIRED IF USING NOHMI PROTOCOL SLC DEVICES

(Maximum current draw on P-Link limited to 1 Amp)

**P-LINK Standby: 0.016 P-LINK Alarm: 0.023**

**\*Only enter quantity if PLINK power is being used to power devices**

SLC Devices			Standby		Alarm	
3	PAD100-PD	Analog Photo Smoke	0.000300	0.000900	0.000300	0.000900
	PAD100-PHD	Analog Photo Smoke/Heat	0.000300		0.000300	
	PAD100-HD	Analog Fixed Temp Heat	0.000300		0.000300	
	PAD100-CD	Analog Carbon Monoxide Detector	0.000300		0.000300	
	PAD100-DUCT	Addressable Duct Detector	0.000300		0.000300	
	PAD100-DRTS	Duct Remote Test Switch	0.010000		0.015000	
	PAD100-DUCTR*	Addressable Duct Detector w/Relay	0.000500		0.000500	
	PAD100-PSSA/PSDA	Addressable Pull Station Single/Dual Action	0.000200		0.000200	
3	PAD100-MIM	Micro Input Module	0.000200	0.000600	0.000200	0.000600
	PAD100-SIM	Single Input Module	0.000240		0.000240	
3	PAD100-DIM	Dual Input Module	0.000240	0.000720	0.000240	0.000720
	PAD100-RM	Relay Module	0.000240		0.000240	
	PAD100-OROI	One Relay One Input Module	0.000240		0.000240	
	PAD100-TRTI	Two Relay Two Input Module	0.000240		0.000240	
	PAD100-ZM*	Conventional Zone Module	0.000240		0.000240	
	PAD100-NAC*	Notification Appliance Circuit	0.000200		0.000200	
	PAD100-SM	Speaker Module	0.000240		0.000240	
	PAD100-IM	Isolator Module	0.000150		0.000150	
	PAD100-LED	LED Module	0.000240		0.000240	
	PAD100-LEDK	Addressable LED w/ Key Switch	0.000200		0.000200	
	PAD100-SB*	Addressable Sounder Base	0.000200		0.000200	
	PAD100-RB	Addressable Relay Base	0.000200		0.000200	
	PAD100-IB	Addressable Isolator Base	0.000150		0.000150	
	PSA	Analog Photo Smoke	0.000325		0.000325	
	PSHA	Analog Photo Smoke/Heat	0.000325		0.000325	
	RHA	Analog Rate of Rise Heat	0.000325		0.000325	
	FHA	Analog Fixed Temp Heat	0.000325		0.000325	
	DDA	Addressable Duct Detector	0.000325		0.000325	
	APS-SA/APS-DA	Addressable Pull Station Single/Dual Action	0.000325		0.000325	
	MCM	Mini Contact Input Module	0.000325		0.000325	
	SCM-4	Single Contact Input Module	0.000325		0.001000	
	DCM-4	Dual Contact Input Module	0.000325		0.001000	
	TRM-4	Twin Relay Output Module	0.000325		0.001000	
	CIZM-4 *	Conventional Zone Input Mod	0.000325		0.001000	
	MOM-4 *	Monitored Output Module	0.000325		0.001000	
	ARB *	Detector Base w/Relay	0.000325		0.000325	
	ASB *	Detector Base w/Sounder	0.000325		0.000325	
	SCI **	Short Circuit Isolator (Class A)	0.000325		0.002340	
	AIB **	Detector Base w/Isolator (Class A)	0.000325		0.002340	

IM/IB/SCI/AIB Class B **	Current Draw from Install Manual			
	SLC Loop Alarm LED Current	0.000000	0.000000	0.036000
		<b>SLC Standby:</b>	<b>0.002220</b>	<b>SLC Alarm:</b>
				<b>0.038220</b>

\* Requires Aux Power (Configure Below)

\*\* See the installation manual for special considerations when installing AIB, SCI devices on Class B loops.

NAC Circuits (See NAC Configuration below)			Standby (amps)	Alarm (amps)
Ckt	Use	Description	Total	Total
1			0.00000	3.00000
2			0.00000	1.50000
NAC Standby:			0.00000	NAC Alarm: 4.50000

I/O Circuits (See I/O Configuration below)			Standby (amps)	Alarm (amps)
Ckt	Use	Description	Total	Total
1			0.00000	0.00000
2			0.00000	0.00000
I/O Standby:			0.00000	I/O Alarm: 0.00000

Battery Calculation Summary				
		Standby (amps)	Alarm (amps)	
Panel Current:		0.13000	0.22000	
P-Link Current:		0.01600	0.02300	
SLC Device Current:		0.00222	0.03822	
NAC Circuit Current:		0.00000	4.50000	
I/O Circuit Current:		0.00000	0.00000	
Total Standby:		0.148220	Total Alarm:	4.78122
Standby Hours:		24	Alarm Mins:	5
AH Required:		3.56	AH Required:	0.40
Total Combined Standby & Alarm AmpHours Required:		3.96		
Efficiency Factor:		80%		
Required Battery AmpHours:		4.95		
Battery AmpHours Provided:		<input type="text"/>		

Note: The cabinet will house two 8 AH or 18 AH batteries. The charging circuit is rated for up to two 55 AH batteries.

SLC Loop Type: Class B  
 Device Addresses Used: 9  
 Device Addresses Available: 60

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### NAC Circuit Configuration & Voltage Drop

**NAC 1** MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

Usage:  Description:

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amp)	Volts @ EOL	Min Volts Req'd
#14 Solid	2.5		0.000	3.000	20.40	16

Qty	Lookup Type	Circuit Devices Desc	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
1		Maximum amount to these bottom 5 rows (No lookup function)			3.000000	3.000000
<b>Total Standby:</b>			<b>0.00000</b>		<b>Total Alarm:</b>	<b>3.00000</b>

**NAC 2** MAX Circuit Current (amps): 3 Source Voltage Used (VDC): 20.4

Usage:  Description:

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amp)	Volts @ EOL	Min Volts Req'd
#14 Solid	2.5		0.000	1.500	20.40	16

Qty	Lookup Type	Circuit Devices Desc	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
		User can add devices on the fly to these bottom 5 rows (No lookup function)				
1		Maximum			1.500000	1.500000
<b>Total Standby:</b>			<b>0.00000</b>		<b>Total Alarm:</b>	<b>1.50000</b>

